

U.S. Navy Funds Mercury to Develop Photonics Chiplet Manufacturing Capability for Defense Applications

SEAPOWER

The Official Publication of the Navy League of the United States

Release from Mercury Systems Inc.

ANDOVER, Mass., Nov. 02, 2023 (GLOBE NEWSWIRE) – Mercury Systems, Inc. (NASDAQ: MRCY, www.mrcy.com), a technology company that delivers mission-critical processing power to the edge, today announced an agreement with the U.S. Navy to develop manufacturing capabilities that would allow commercial photonics chiplets to accelerate edge processing in defense applications.

The Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)) Trusted and Assured Microelectronics (T&AM) Program's Project KANAGAWA aims to mature the domestic supply chain and manufacturing processes for multi-chip

packages, where co-packaged optics are integrated with electronic integrated circuits to enable long-reach and high-bandwidth data transfer. Compared to conventional copper connections, photonics uses optical fibers to enable orders of magnitude improvement in data bandwidth at a fraction of the power needed. The promise of this technology for defense systems has been well-known for decades, but demonstrations have relied on expensive and custom approaches that are not compatible with high-volume production.

Under a \$3.9 million, 17-month Other Transaction Agreement (OTA) with Naval Surface Warfare Center (NSWC) Crane Division, Mercury gains access to photonics devices developed for the commercial sector by Intel and Ayar Labs. These chiplet devices use optical technology to move data through systems such as data centers at speeds in excess of a terabyte per second. Mercury plans to develop miniaturized and ruggedized packages using photonics chiplets for defense applications to allow edge sensor data to be ingested much faster, enabling faster decision-making in next-generation radar and electronic warfare systems.

“We are excited to partner with the Navy to bring this game-changing commercial technology to the defense community,” said Tom Smelker, Mercury’s GM of Microsystems. “As we continue to drive innovation in defense microelectronics at the edge and move from board-scale to chip-scale, photonics chiplets will play a key role in advanced packaging and benefit a wide range of systems and platforms.”

“Breaking the data transfer bottleneck is a critical objective for the RF & Optoelectronics (RF/OE) program,” said Joshua Hawke, USD(R&E) RF/OE Execution Lead. “This partnership with Mercury will proliferate co-packaged optics within the Defense Industrial Base and accelerate adoption of innovative technology by the warfighter.”